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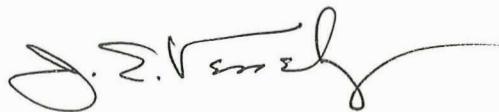
COMPARATIVE ANALYSIS
OF THE
REQUIREMENTS OF MIL-Q-9858 and MIL-Q-9858A
TO THE
REQUIREMENTS OF NPC 200-2

FACILITY FORM 602

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**RETURN TO
DATA SYSTEM
FILE ROOM
RM. A922**

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I. Introduction

Many of NASA's contracts currently specify Military Specification - Quality Control System Requirements, MIL-Q-9858, and Military Specification - Quality Program Requirements, MIL-Q-9858A, as the basis for contractor quality program performance. NASA's Quality Program Provisions for Space System Contractors, NPC 200-2, was developed to provide the quality requirements necessary for contractor quality programs to ensure the required quality of NASA space systems.

In order to effect the transition from MIL-Q-9858 or MIL-Q-9858A, it is necessary that the differences between these documents and NPC 200-2 be defined and an assessment be made of the effects upon the contractor's current quality efforts.

II. Purpose and Scope

The purpose of this document is to assist NASA and the contractors in the transition from MIL-Q-9858 or MIL-Q-9858A to NPC 200-2 by detailing the major differences and assessing the effects on the contractor's documentation requirements, quality requirements, traceability requirements and quality costs.

A comparison between MIL-Q-9858 and MIL-Q-9858A is not included in this document. No attempt was made to review any other specification or standard which is referenced in any of the documents reviewed.

III. Document Comparison - NPC 200-2 vs. MIL-Q-9858A

The following section is a comparison of the quality requirements of MIL-Q-9858A to NPC 200-2, using NPC 200-2 as a base. The tabulation indicates the degree of coverage of MIL-Q-9858A to this base and describes major differences.

Para. No.	Title	Para. No.	Major Differences		
			More Coverage	Equal Coverage	Less Coverage
Section 1: Introduction					
1.1	General	1.2	X		
1.2	Applicability	1.1	X		
1.3	Relation to Detail Requirements	1.4	X		
1.4	Relation to Reliability Requirements	1.4	X		
1.5	Government Quality Assurance Actions	1.2	X		
1.6	Revisions	2.2	X		
Section 2: Basic Requirements					
2.1	General	1.3	X		
2.2	Quality Program Documentation				X
MIL-Q-9858A does not specifically reference a summary of Quality Program documentation requirements.					
Appendix "B"					
Submittals for approval:					
Qualification Status List					
End-Item Test Plan					
End-Item Test and Inspection Procedure					

NPC 200-2

Para. No.	Title	Para. No.	Major Differences	MIL-Q-9858 A	
				Coverage Less	Coverage More
	Submittals for review:		Submittal of Plan in MIL-Q-9858A not required.		
	Quality Program Plan	1.2	X		
	Test and Inspection Procedures	3.3	X		
	Process Control Procedures	6.2	X		
	Results of Special Measuring and Test Equipment Evaluation			X	
	Storage Procedures for End-Items			X	
	Special Sampling Plan; Application of Sampling	6.6	X		
2.3	Change Control				
2.3.1	General	4.1	X		
2.3.2	Effectivity	4.1	X		
	Section 3: Management				
3.1	Planning	3.2	X	MIL-Q-9858A does not specify the initiation of quality policies and objectives, a written quality program operating plan or a document means of measuring realization against the plan. MIL-Q-9858A primary emphasis is in development of tools necessary for assuring product quality.	
3.1.1	Quality Program Plan Submission	1.2	X	MIL-Q-9858A does not describe contents of the Quality Program Plan nor does it require submittal of the Quality Program Plan.	

Section		Para. No.	Title	Para. No.	Coverage More Coverage Equival. Less Coverage No Coverage	MIL-Q-9858 A Coverage Less Coverage No Coverage	MIL-Q-9858A does not require that the one responsible for directing the Quality Program have direct, unimpeded access to high management.	Major Differences
3.2	Organization	3.1			X			
	Section 4: Design & Development Control	4.1				X		
	4.1.1 General	3.3				X		
	4.2 Drawing and Specification Review	4.2				X		
	4.2.1 General	1.4				X		
	4.2.2 Qualified and Preferred Parts	3.2				X		
	4.2.3 Government Document Review							X
	4.2.4 Planning							
	4.3 Qualification Tests							

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Para. No.	Title	Para. No.	Major Differences		
			MIL-Q-9858A Coverage More Less	MIL-Q-9858A Coverage Equal	MIL-Q-9858A Coverage No Coverage
4.3.1	General		X	X	
4.3.2	Parts, Components, and Sub-assemblies		X	X	
4.3.3	Systems and Major Subsystems	3.5	X	-	
4.3.4	Requalification Tests	5.1	- X	-	
4.3.5	Qualification Status List	4.1	X	-	
4.4	Identification		-	-	
	Section 5: Control of Contractor Procured Material		X	-	
5.1	General	5.1	-	-	
	Selection of Procurement Sources		-	-	
5.2.1	General	5.1	X	-	
5.2.2	Records		X	-	

MIL-Q-9858A is not specific, and only indicates review for adequate corrective action.

MIL-Q-9858A refers to a qualified product list related to purchased material and supplies established after production.

MIL-Q-9858A does not require identification by part or serial No. for precise control.

MIL-Q-9858A does not specifically mention the requirement for furnishing technical assistance to suppliers.

MIL-Q-9858A does not reference the requirement for vendor survey or specific control of shelf items.

MIL-Q-9858A does not specifically require supplier record maintenance and states documentation requirements in general terms.

Para. No.	Title	Para. No.	No. Coverage	Coverage	MIL-Q-9858A	Major Differences
5.3	Procurement Documents	5.3.1		X		MIL-Q-9858A does not require the same quantitative technical and specification information.
		5.3.1		X		MIL-Q-9858A does not specify specific tests and inspection of procured articles furnished to contractor. Does not have any reference to un-inspectable characteristics control.
		5.4		X		MIL-Q-9858A is more specific on periodic checks and re-preservation.
		5.2		X		MIL-Q-9858A does not require identification of articles having a design change.
		5.2		X		MIL-Q-9858A does not require a Q.C. review prior to release and minimum requirement for military review.
		7.1		X		MIL-Q-9858A does not specify criteria for use and requirement where objective evidence must be used.
		5.1		X		MIL-Q-9858A does not specifically require periodic disassembly or planning for performance of inspection and test to verify quality requirements. There is no requirement that inspection & test equipment, drawings, specification or instruction be available.
		5.1		X		

Para. No.	Title	Para. No.	Major Differences	
			MIL-Q-9858A Coverage Less Coverage	No Coverage
5.7	Identification	6.2	X	
5.8	Failure and Deficiency Feedback	5.1	X	
5.9	Supplier rating and Preferred Source Lists		X	
5.10	Coordination of Contractor-Supplier Measuring and Test Equipment and Standards	4.2	X	
				MIL-Q-9858A requires only that supplier uses a calibration system. Does not specify coordination or correlation in specifications.
6.1	Inspection of Government Furnished Property	7.2.1	X	
6.2	Defective Government Furnished Property	7.2.2	X	MIL-Q-9858A requires recording cause and need for withholding from use.

MIL-Q-9858 A	Para. No.	Title	Para. No.	Coverage Major Coverage Less Coverage No Coverage	Major Differences
Section 7: Control of Contractor-Fabricated Articles			6.2	X	
7.1 General			6.2	X	
7.2 Conformance Criteria			3.2	X	MIL-Q-9859A does not require the documentation of the general plan in the Quality Program Plan.
7.3 Inspection and Test Planning			3.3	X	NPC 200-2 is more specific, delineating the minimum requirements of the procedures.
7.3.1 Inspection and Test Procedures			3.3	X	MIL-Q-9858A does not require the definition of each characteristic nor does it specify the terms of definition.
7.3.2 Establishment of Values to be Observed			6.2	X	MIL-Q-9858A does not require that all inspection personnel be qualified in accordance with training and certification requirements.
7.3.3 Workmanship Inspection Standards			3.5	X	
7.4 Inspection and Test Performance			6.2	X	
7.4.1 In-Process Inspection			6.3	X	
7.4.2 End-Item Tests and Final Inspection			6.3	X	MIL-Q-9858A does not require a documented end-item test plan.
7.4.2.1 End-Item Test Plan			6.3	X	MIL-Q-9858A does not require the reporting to the cognizant NASA representative of any abnormal condition, the detection and correction of which, is not specifically contained in the requirements.
7.4.2.2 Tests and Inspections					

NPC 200-2

MIL-Q-9858

Para. No. Title Para. No. Major Differences

7.4.2.3 Documents and Records

7.4.2.4 Modifications after Final Tests and Inspection

NPC 200-2 requires that the degree of retest be determined by the cognizant NASA representative.

7.4.2.5 Personnel

7.5 Fabrication Controls

7.5.1 Production Tooling and Fabrication Equipment

7.5.2 Material Control

7.5.3 Control of Cleanliness of Fabrication and Test Spaces

7.5.4 Process Control Procedures

7.5.4.1 Process Control Procedures

7.5.4.2 Process Environments

MIL-Q-9858 Coverage Less Coverage Equal Coverage More Coverage No Coverage	NPC 200-2 Coverage Less Coverage Equal Coverage More Coverage No Coverage	Major Differences
X	3.4	
X	6.3	
X	4.3	
X	6.1	
X	6.2	

NPC 200-2

MIL-Q-9858A

Para. No.	Title	Para. No.	Major Differences
7.5.4.3	Process Certification	6.2	MIL-Q-9858A does not require that records be maintained of the qualifying tests or that the adequacy of the personnel performing the certification be subject to approval or disapproval by the cognizant NASA representative.
8.1	Section 8: Nonconforming Material	6.5	NPC 200-2 is more specific. MIL-Q-9858A does not require the establishment of a Material Review Board. MIL-Q-9858A does not require positive corrective action to prevent recurrence on each nonconformance. NPC 200-2 does not require that the contractor make known cost and loss data in connection with scrap and rework.
8.2	8.1.1 Subcontractor MRB	X	
8.3	Approval of Contracting Officer	X	
8.4	Control of Nonconforming Material	6.5	MIL-Q-9858A does not specify the method of identification.
8.5	Rework without MRB	X	
9.1	Section 9: Inspection, Measuring, and Test Equipment	4.2	MIL-Q-9858A is more specific relative to control of production tooling.

NPC 200-2

Para. No.	Title	Para. No.	Major Differences
9.2	Calibration	4.2	MIL-Q-9858A references Military Specification 45662.
9.3	Calibration Facilities and Standards	4.2	MIL-Q-9858A references Military Specification 45662.
9.4	Evaluation	4.2	MIL-Q-9858A is not as detailed.
9.5	Maintenance and Control	X	
9.6	Written Standards	X	
9.7	Records	X	
	Section 10: Inspection Stamps	X	
10.1	General	6,7	NPC 200-2 is more defined. MIL-Q-9858A does not require that: <ul style="list-style-type: none"> a) each stamp be traceable to the responsible individual. b) records be maintained identifying personnel with inspection stamps. c) stamps indicating conformance be applied directly to the material unless impractical.
11.1	General	6,4	Section 11: Preservation, Packaging, Handling, Storage and Shipping

NPC 200-2

Para. No.	Title	Para. No.	Major Differences
12.4	Statistical Quality Control Charts		
	Section 13: Training and Certification of Personnel		
13.1	Training	X	
13.2	Certification of Fabrication and Inspection Personnel	X	
	Section 14: Data Reporting and Corrective Action		
14.1	General	3.4	
14.2	Data Reporting	X	MIL-Q-9858A does not provide the detailed results expected from the collection and analysis of quality data.
14.2.1	Monthly Quality Status Report	X	
14.2.2	Laboratory and Experimental Data	6.2	MIL-Q-9858A does not specify the detailed requirements of NPC 200-2.
14.2.3	Quality Data	3.4	Same as above,
14.2.4	Narrative End-Item Report	X	
14.2.5	Operational Data	X	

MIL-Q-9858 A

More Coverage
Equal Coverage
Less Coverage
No Coverage

Major Differences

Para. No.	Title	Para. No.	Major Differences		
			MIL-Q-9858 A	Coverage Equal	Coverage Less
14.3	Corrective Action	3.5	X		
	Section 15: Audit of Quality Program Performance			X	
	15.1 Performance of Audits	3.1		X	
	15.2 Audit Reports and Corrective Action				X

IV. Document Comparison - NPC 200-2 vs. MIL-Q-9858

The following section is a comparison of the quality requirements of MIL-Q-9858 to NPC 200-2 using NPC 200-2 as a base. The tabulation indicates the degree of coverage of MIL-Q-9858 to this base and describes major differences.

Para. No.	Title	Para. No.	Major Differences		
			MIL-Q-9858 Coverage Less Coverage Equal Coverage No Coverage	MIL-Q-9858 Coverage More Coverage Equal Coverage Less Coverage No Coverage	MIL-Q-9858 disapproval.
Section 1: Introduction					
1.1 General	1.1	X			MIL-Q-9858 subjects quality procedures to disapproval.
1.2 Applicability	1.2	X			MIL-Q-9858 is much more specific and detailed. Spells out hardware, facilities, supplies and services
1.3 Relation to Detail Requirements	3.1 4.1	X	X		MIL-Q-9858
1.4 Relation to Reliability Requirements	3.1		X		MIL-Q-9858 merely mentions reliability.
1.5 Government Quality Assurance Actions	1.1 3.5.3	X	X		MIL-Q-9858 is directed at subcontract operations only.
1.6 Revisions	2.1 2.2		X		
Section 2: Basic Requirements					
2.1 General	3.1		X		
2.2 Quality Program Documentation	3.16		X		MIL-Q-9858 is less specific and requires documentation to be available for Government surveillance only.
2.2.1 Approval				X	
2.2.2 Review				X	
2.2.3 Information				X	

NPC 200-2

MIL-Q-9858

Para. No.	Title	Para. No.	Major Differences
2.3	Change Control	3.3	NPC 200-2 calls for an organization. MIL-Q-9858 calls for a system.
2.3.1	General	3.3	MIL-Q-9858 does not call for timing considerations or spell out contents of plan.
2.3.2	Effectivity		MIL-Q-9858 does not specify details of organization requirements.
Section 3: Management			
3.1	Planning	1.1	
3.1.1	Quality Program Plan Submission	3.1	
3.2	Organization		

More Coverage
Equal Coverage
Less Coverage
No Coverage

More Coverage
Equal Coverage
Less Coverage
No Coverage

Major Differences

NPC 200-2

Para. No.	Title	Para. No.	Major Differences	
			MIL-Q-9858 Coverage Less Coverage	No Coverage
4.1	Design and Development Control		X	
4.2	Drawings and Specification Review		X	
4.2.1	General	3.13	X	
4.2.2	Qualified and Preferred Parts		X	
4.2.3	Government Document Review		X	
4.2.4	Planning		X	
4.3	Qualification Tests		X	
4.3.1	General		X	
4.3.2	Parts, Component & Subassembly		X	
4.3.3	Systems and Major Subsystems		X -	
4.3.4	Requalification Tests		X	
4.3.5	Qualified Status List		X	
4.4	Identification		X	

Para. No.	Title	Para. No.	Major Differences
	Section 5: Control of Contractor Procurred Material	3.5.5	MIL-Q-9858 is concerned only with inspection of articles after delivery to contractor.
5.1	General	X	
5.2	Selection of Procurement Sources		
5.2.1	General	X	MIL-Q-9858 has no reference to selecting sources.
5.2.2	Records	X	MIL-Q-9858 does not specifically call out record requirements.
5.3	Procurement Documents		
5.3.1	Contents	X	MIL-Q-9858 does not specifically require technical and detailed quality requirements. Requirements are described in general terms.
	(a, through f, h, & j.)		
	g.) Evidence of Supplier Inspections Performed	X	
	i.) Age Control	X	
	k.) Articles of Supplier Design	X	
5.3.2	Review	X	
5.4	Government Source Inspection	3.5.3	
5.5	Contractor Source Inspection	X	

Para. No.	Title	Para. No.	Major Differences
5.6	Receiving Inspection	3.5.5	MIL-Q-9858 does not specifically allow for use of objective evidence or periodic teardown. It is incoming inspection and test oriented.
5.7	Identification	3.10	MIL-Q-9858 indicates in general that all supplies should be identified as to inspection status.
5.8	Failure and Deficiency Feedback		
5.9	Supplier Rating and Preferred Source Lists		X
5.10	Coordination of Contractor-Supplier Measurement and Test Equipment		X
	Section 6: Control of Government Furnished Property		X
6.1	Inspection of Government Furnished Property	3.12.1	
6.2	Defective Government Furnished Property	3.12.1.1	MIL-Q-9858 requires recording cause and need for withholding from use.

Para. No.	Title	Para. No.	Major Differences
Section 7: Control of Contractor-Fabricated Articles			MIL-Q-9858 refers only to shop operations.
7.1 General		3.6	
7.2 Conformance Criteria		3.1 3.2	
7.3 Inspection and Test Planning		X	
7.3.1 Inspection and Test Procedures (a. through h.)		3.1	
7.3.2 Establishment of Values to be Observed (a. through c.)		X	MIL-Q-9858 does not spell out the detailed requirements to be included in the planning.
7.3.3 Workmanship Inspection Standards		X	
7.4 Inspection and Test Performance		X	MIL-Q-9858 gives very broad requirements. None for defect prevention activity.
7.4.1 In-Process Inspection		X	MIL-Q-9858 gives very broad treatment.
7.4.2 End-Item Tests and Final Inspection		3.1 3.2	MIL-Q-9858 gives no specifics - included in a general paragraph.
7.4.2.1 End-Item Test Plan		3.3	MIL-Q-9858 requires final inspection only. Does not specify tests nor environments under which tests will be performed.
7.4.2.2 Tests and Inspections			

Para. No.	Title	Para. No.	Major Differences	
			MIL-Q-9858 Coverage	No Coverage
7.4.2.3	Documents and Records	3.16	X	
7.4.2.4	Modifications after Final Tests and Inspection		X	
	7.4.2.5 Personnel (Certification of)		X	
7.5	Fabrication Controls			
7.5.1	Production Tooling and Fabrication Equipment	3.4.1	X	
7.5.2	Material Control		X	
7.5.3	Control of Cleanliness of Fabrication and Test Spaces		X	
7.5.4	Process Control	3.7	X	
7.5.4.1	Process Control Procedures	3.1	X	
7.5.4.2	Process Environments		X	
7.5.4.3	Process Certification			
				MIL-Q-9858 merely requires that contractors and subcontractors be qualified for special processes.

Para. No.	Title	Para. No.	More Coverage	Equal Coverage	Less Coverage	No Coverage	Coverage	MIL-Q-9858	Major Differences
	Section 8: Nonconforming Material								
8.1	Material Review	3.11	X						MIL-Q-9858 does not provide the detail describing the MRB.
8.1.1	Subcontractor MRB			X					
8.2	Approval of Contracting Officer				X				MIL-Q-9858 does not provide for conditional release to higher assemblies.
8.3	Control of Nonconforming Material	3.11				X			
8.4	Rework without MRB						X		

Para. No.	Title	Para. No.	Major Differences
	Section 9: Inspection, Measuring and Test Equipment		
9.1	General	3.4	MIL-Q-9858 leaves more to the contractor's control
9.2	Calibration	3.4	MIL-Q-9858 does not specify any definite schedule or related specifications.
9.3	Calibration Facilities & Standards	3.4	MIL-Q-9858 does not designate use of bureau standards as a reference.
9.4	Evaluation	3.4	MIL-Q-9858 does not require recording tolerance or accuracy of gages, etc.
9.5	Maintenance and Control	3.4	MIL-Q-9858 only requires written schedule for maintenance Does not specify removal from use.
9.6	Written Procedures	3.4	
9.7	Records	3.4	
	Section 10: Inspection Stamps	3 10	NPC 200-2 is more defined MIL-Q-9858 does not require that:
10.1	General		a) each stamp be traceable to the responsible individual.
			b) records be maintained identifying personnel with inspection stamps
			c) stamps indicating conformances be applied directly to the material unless impractical.

NPC 200-2

Para. No.	Title	Para. No.	Major Differences		
			MIL-Q-9858 Coverage Equal Coverage Less Coverage No Coverage	MIL-Q-9858 Coverage Equal Coverage Less Coverage No Coverage	MIL-Q-9858 only mentions preservation treatment with respect to storage, with no requirements for fabrication or shipping.
Section 11: Preservation, Packaging, Handling, Storage and Shipping			X	X	
11.1 General		3.14		X	
11.2 Preservation				X	
11.3 Packaging				X	
11.4 Handling				X	
11.5 Storage		3.14		X	
11.6 Shipping		3.15		X	
Section 12: Statistical Planning, Analysis, and Quality Control					
12.1 General				X	
12.2 Statistical Analysis and Test Planning					
12.3 Sampling Plans	3.9			X	
12.4 Statistical Quality Control Charts					MIL-Q-9858 does not: a) list the conditions when sampling may be used b) mention military sampling plans c) mention alternate sampling plans

Para. No.	Title	Para. No.	Major Differences
	Section 13: Training and Certification of Personnel		
13.1	Training	3.7	X
13.2	Certification of Fabrication and Inspection Personnel	3.7	X Same as above.
	Section 14: Data Reporting and Corrective Action		
14.1	General	3.16	X
14.2	Data Reporting	3.16	X
14.2.1	Monthly Quality Status Report		X
14.2.2	Laboratory and Experimental Data	3.16	X
14.2.3	Quality Data	3.16	X
14.2.4	Narrative End-Item Report		X
14.2.5	Operational Data		X

More Coverage
 Equal Coverage
 Less Coverage
 No Coverage

Major Differences
 MIL-Q-9858 merely requires that contractors and subcontractors be qualified for special processes.

Para. No.	Title	Para. No.	Major Differences
14.3	Corrective Action (a. through g.)	X	MIL-Q-9858 required this action but no details are specified.
Section 15:	Audit of Quality Program Performance	X	MIL-Q-9858 requires only the use of feed-back information for corrective action. No reference is made to a formal audit.
15.1	Performance of Audits	X	Same as above. No requirement for periodic audit summaries.
15.2	Audit Reports and Corrective Action	X	
	Appendix A - Glossary of Terms	X	
	Appendix B - Quality Program Documentation	X	MIL-Q-9858 does not have a list of documents required.

V. Summary

A. Description of the Documents

1. MIL-Q-9858 establishes the requirements for a "Quality Control System" and is, therefore, limited in scope to the Manufacturing Quality Control function. It is primarily concerned with production inspections and tests and their relative supporting data and records.
2. MIL-Q-9858A establishes the requirements for a "Quality Program" and is broader in scope than its predecessor MIL-Q-9858. Although it is intended for use as a total Quality System specification for complex equipments, it lacks sufficient definitive requirements which integrate the quality program from the design and development phases through delivery to the customer.
3. NPC 200-2 is much broader in scope and contains more specific quality requirements than either of the military specifications. It provides for an integrated total quality program with specific requirements in the areas of Product Development, Quality Planning and Preventative Control. Throughout the specification, quality requirements are related to reliability. Its greater requirements in techniques and documentation ensure contractor compliance and NASA approval of the essentials of a quality program.

NPC 200-2 is a complete document, in itself, and does not refer to any supplementary specifications; while both MIL-Q-9858 and MIL-Q-9858A often depend upon other specifications for supplementary control. Therefore, a complete comparison relative to any contract would have to include the additional assessment of these supplementary specifications.

B. NPC 200-2 vs. MIL-Q-9858A

1. Areas of Increased Requirements

The following chart has been prepared to summarize the areas of NPC 200-2 which would affect increased or additional requirements on the contractor in the transition from MIL-Q-9858A. Five major contractor-impact categories have been selected for the summation:

- a. Documentation
- b. Quality
- c. Traceability
- d. Costs
- e. General quality management

Although the chart summarizes the increased or additional requirements, the actual increase would have to be measured against the individual contract using the information contained in Section IV of this document.

Para. No.	Title	Areas of Increased Requirements			
		Documentation	Quality	Traceability	Quality Costs
1.1	General				
1.2	Applicability		X		
1.3	Relation to Detailed Requirements			X	
1.4	Relation to Reliability Req'ts.				X
1.5	Government Quality Assurance Actions				X
1.6	Revisions				X
SECTION 1: Introduction					
2.1	General		X		
2.2	Quality Program Documentation			X	
2.3	Change Control				X
2.3.1	General				X
2.3.2	Effectivity		X		
SECTION 2: Basic Requirements					
3.1	Planning				
3.1.1	Quality Program Plan Submission				
3.2	Organization				
SECTION 3: Management					
4.1	General				
4.2	Drawing & Specification Review				X
4.2.1	General				X
4.2.2	Qualified & Preferred Parts				X
4.2.3	Government Document Review				X
4.2.4	Planning				X
4.3	Qualification Tests				X
4.3.1	General				X
4.3.2	Parts, Components & Sub Assemblies				X
4.3.3	Systems & Major Sub Systems				X
4.3.4	Requalification Tests				X
4.3.5	Qualification Status List				X
SECTION 4: Design & Development Control					

Para. No.	Title	Areas of Increased Requirements		
		Documentation	Quality	Traceability
		Quality Costs	General	
4.4	Identification	X	X	X
	SECTION 5: Control of Contractor Procured Material			
5.1	General Selection of Procurement Sources	X	(except i)	
5.2	General Records	X	X	X
5.2.1	Procurement Documents	X	X	X
5.2.2	Contents	X	X	X
5.3	Review	X		
5.3.1	Government Source Inspection			
5.3.2	Contractor Source Inspection			
5.4	Receiving Inspection			
5.5	Identification			
5.6	Failure & Deficiency Feedback			
5.7	Supplier Rating & Preferred Source Lists	X	X	X
5.8	Coordination of Contractor-Supplier Measuring	X	X	X
5.9	and Test Equipment and Standards			
5.10				
	SECTION 6: Control of Gov't. Furnished Property			
6.1	Inspection of Gov't. Furnished Property			
6.2	Defective Gov't. Furnished Property			
	SECTION 7: Control of Contractor-Fabricated Articles			
7.1	General			
7.2	Conformance Criteria	X		X
7.3	Inspection & Test Criteria			X
7.3.1	Inspection & Test Procedures			X
7.3.2	Establishment of Values to be Observed			X
7.3.3	Workmanship Inspection Standards.			X

Para. No.	Title	Areas of Increased Requirements			
		Documentation	Quality	Traceability	Quality Costs
7.4	Inspection & Test Performance				
7.4.1	In-Process Inspection	X			
7.4.2.1	End-Item Test Plan	X			
7.4.2.2	Tests & Inspections	X			
7.4.2.3	Documents & Records				
7.4.2.4	Modification After Final Tests & Inspection				
7.4.2.5	Personnel				
7.5	Fabrication Controls				
7.5.1	Production Tooling & Fabrication Equipment				
7.5.2	Material Control				
7.5.3	Control & Cleanliness of Fab. & Test Spaces				
7.5.4	Process Control				
7.5.4.1	Process Control Procedures	X			
7.5.4.2	Process Environments	X			
7.5.4.3	Process Certification	X			
SECTION 8: Non-Conforming Material					
8.1	Material Review				
8.1.1	Subcontractor MRB	X			
8.2	Approval of Contracting Officer	X			
8.3	Control of Non-Conforming Material				
8.4	Rework Without MRB	X			
SECTION 9: Inspection, Measuring & Test Equipment					
9.1	General				
9.2	Calibration				
9.3	Calibration Facilities & Standards				
9.4	Evaluation				
9.5	Maintenance & Control				
9.6	Written Standards	X			
9.7	Records	X	X		

Para. No.	Title	Areas of Increased Requirements			
		Documentation	Quality	Traceability	Quality Costs
10.1	General	X	X	X	X
11.1	SECTION 10: Inspection Stamps				
11.1.1	General	X	X	X	X
11.1.2	Preservation				
11.1.3	Packaging				
11.1.4	Handling	X	X	X	X
11.1.5	Storage				
11.1.6	Shipping	X	X	X	X
11.2	SECTION 11: Preservation, Packaging, Handling, Storage & Shipping				
11.3					
11.4					
11.5					
11.6					
12.1	SECTION 12: Statistical Planning, Analysis and Quality Control				
12.1.1	General				
12.1.2	Statistical Analysis & Test Planning				
12.1.3	Sampling Plans				
12.1.4	Statistical Quality Control Charts	X	X	X	X
12.2	SECTION 13: Training & Certification of Personnel				
12.2.1	General				
12.2.2	Training				
12.2.3	Certification of Fabrication & Inspection Personnel	X	X	X	X
12.3	SECTION 14: Data Reporting & Corrective Action				
12.3.1	General				
12.3.2	Data Reporting				
12.3.3	Monthly Quality Status Report	X	X	X	X
12.3.4	Laboratory & Experimental Data	X	X	X	X
12.3.5	Quality Data	X	X	X	X
12.3.6	Narrative End Item Report	X	X	X	X

Para. No.	Title	Areas of Increased Requirements			
		Documentation	Quality	Traceability	Quality Costs
					General
14.2.5 14.3	Operational Data Corrective Action	X	X		X
	SECTION 15: Audit of Quality Program				
15.1 15.2	Performance of Audits Audit Reports & Corrective Action		X X	X	

2. Narrative Summary

a. Documentation

The transition of conformance from MIL-Q-9858A to NPC 200-2 will impose increased quality documentation requirements on the contractor. MIL-Q-9858A does not detail the specific requirements for formal submittal of Quality Program Documentation on NPC 200-2 (Appendix "B"). NPC 200-2 also requires increased documentation in such areas as: Qualification status lists, supplier selection and control, material, traceability control, quality audits, personnel and process certifications, MRB, test and inspection procedures and records, control charts and corrective action, analysis and reporting.

b. Quality

To invoke conformance to NPC 200-2 on a contractor currently performing to MIL-Q-9858A will increase the requirements for the control of product quality. These requirements are primarily in the areas of: qualified and preferred parts usage, qualification and requalification tests, procurement and supplier control, material traceability, process and personnel certification, non-conforming material control, and corrective actions requirements.

c. Traceability

The traceability requirements of NPC 200-2 exceed those of MIL-Q-9858A in the areas of change control, nonconforming material control, part and serial number identification, supplier material identification, traceability records, and inspection stamp traceability.

d. Costs

The quality costs of conformance to NPC 200-2 is greater than those of MIL-Q-9858A. This is due to the increased or additional documentation, quality and traceability requirements previously mentioned.

e. General Quality Management

NPC 200-2 requires management planning and controls over those of MIL-Q-9858A. NPC 200-2 provides for such items as: initiation of quality policies and objectives, a quality program operating plan, greater design and development control, increased test and inspection planning, and additional data reporting and corrective action analysis.

C. NPC 200-2 vs. MIL-Q-9858

1. Areas of Increased Requirements

The following chart has been prepared to summarize the areas of NPC 200-2 which would affect increased or additional requirements on the contractor in the transition from MIL-Q-9858 to NPC 200-2. Five major contractor-impact areas affected have been selected for summation:

- a. Documentation
- b. Quality
- c. Traceability
- d. Costs
- e. General Quality Management

The chart indicates increased or additional requirements; however, the actual increase would have to be measured against the individual contract using the information contained in Section IV of this document.

Further, it must be pointed out that when MIL-Q-9858 is included in a contract, normally other documents such as other military specifications, Air Force regulations, and possibly Technical Orders are contained therein also. In many cases, the differences between MIL-Q-9858 and NPC 200-2 will be filled to a certain extent depending on the documents contained in the contract.

Areas of Increased Requirements (NPC 200-2 Over MIL-Q-9858)

Para. No.	Title	Documentation	Quality	Traceability	Costs	General
	SECTION 1: Introduction		X	X	X	
1.1	General					
1.2	Applicability					
1.3	Relation to Detailed Requirements					
1.4	Relation to Reliability Req'ts.					
1.5	Gov't. Quality Assurance Actions					
1.6	Revisions					
	SECTION 2: Basic Requirements		X			
2.1	General					
2.2	Quality Program Documentation					
2.3	Change Control					
2.3.1	General					
2.3.2	Effectivity					
	SECTION 3: Management		X			
3.1	Planning					
3.1.1	Quality Program Plan Submission					
3.2	Organization					
	SECTION 4: Design & Development Control		X			
4.1	General					
4.2	Drawing & Specification Review					
4.2.1	General					
4.2.2	Qualified & Preferred Parts					
4.2.3	Gov't. Document Review					
4.2.4	Planning					
4.3	Qualification Tests					
4.3.1	General					
4.3.2	Parts, Components & Sub Assemblies					
4.3.3	Systems & Major Subsystems					
4.3.4	Requalification Tests					
4.3.5	Qualification Status List					

Para. No.	Title	Documentation	Quality	Traceability	Costs	General
4.4	Identification	X	X	X	X	
	SECTION 5: Control of Contractor Procured Material					
5.1	General Selection of Procurement Sources	X	X			
5.2	General Records	X	X			
5.2.1		X	X			
5.2.2		X	X			
5.3	Procurement Documents	X	X			
5.3.1	Contents	X	X			
5.3.2	Review	X	X			
5.4	Government Source Inspection	X	X			
5.5	Contractor Source Inspection	X	X			
5.6	Receiving Inspection	X	X			
5.7	Identification	X	X			
5.8	Failure & Deficiency Feedback	X	X			
5.9	Supplier Rating & Preferred Source Lists	X	X			
5.10	Coordination of Contractor-Supplier Measuring and Test Equipment and Standards	X	X			
	SECTION 6: Control of Gov't. Furnished Property					
6.1	Inspection of Gov't. Furnished Property					
6.2	Defective Gov't. Furnished Property					
	SECTION 7: Control of Contractor-Fabricated Articles					
7.1	General	X	X	X	X	
7.2	Conformance Criteria	X	X	X	X	
7.3	Inspection & Test Criteria	X	X	X	X	
7.3.1	Inspection & Test Procedures	X	X	X	X	
7.3.2	Establishment of Values to Be Observed	X	X	X	X	
7.3.3	Workmanship Inspection Standards	X	X	X	X	

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Para. No.	Title	Areas of Increased Requirements (NPC 200-2 Over MIL-Q-9858)			
		Documentation	Quality	Traceability	Costs
		X	X	X	X
7.4	Inspection & Test Performance				
7.4.1	In-Process Inspection	X			
7.4.2.1	End-Item Test Plan	X	X		
7.4.2.2	Tests & Inspections	X	X		
7.4.2.3	Documents & Records	X	X		
7.4.2.4	Modification After Final Tests & Inspection	X	X		
7.4.2.5	Personnel	X			
7.5	Fabrication Controls				
7.5.1	Production Tooling & Fabrication Equipment	X			
7.5.2	Material Control	X			
7.5.3	Control & Cleanliness of Fab. & Test Spaces	X			
7.5.4	Process Control	X			
7.5.4.1	Process Control Procedures	X			
7.5.4.2	Process Environments	X			
7.5.4.3	Process Certification	X			
	SECTION 8: Non-Conforming Material				
8.1	Material Review	X			
8.1.1	Subcontractor MRB	X			
8.2	Approval of Contracting Officer	X			
8.3	Control of Non-Conforming Material	X			
8.4	Rework Without MRB	X			
	SECTION 9: Inspection, Measuring & Test Equipment				
9.1	General	X			
9.2	Calibration	X			
9.3	Calibration Facilities & Standards	X			
9.4	Evaluation	X			
9.5	Maintenance & Control	X			
9.6	Written Standards	X			
9.7	Records	X			

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Areas of Increased Requirements (NPC 200-2 Over MIL-Q-9858)						
Para. No.	Title	Documentation	Quality	Traceability	Costs	General
10.1	General	X	X	X		
	SECTION 10: Inspection Stamps					
11.1	General	X	X	X		
11.2	Preservation	X	X	X		
11.3	Packaging	X	X	X		
11.4	Handling	X	X	X		
11.5	Storage	X	X	X		
11.6	Shipping	X	X	X		
	SECTION 11: Preservation, Packaging, Handling, Storage, and Shipping					
12.1	General	X	X	X		
12.2	Statistical Analysis & Test Planning	X	X	X		
12.3	Sampling Plans	X	X	X		
12.4	Statistical Quality Control Charts	X	X	X		
	SECTION 12: Statistical Planning, Analysis and Quality Control					
13.1	Training	X	X	X		
13.2	Certification of Fabrication & Inspection Personnel	X	X	X		
	SECTION 13: Training & Certification of Personnel					
14.1	General	X	X	X		
14.2	Data Reporting	X	X	X		
14.2.1	Monthly Quality Status Report	X	X	X		
14.2.2	Laboratory & Experimental Data	X	X	X		
14.2.3	Quality Data	X	X	X		
14.2.4	Narrative End Item Report	X	X	X		
	SECTION 14: Data Reporting & Corrective Action					

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Areas of Increased Requirements (NPC 200-2 Over MIL-Q-9858)

Para. No.	Title	Documentation	Quality	Traceability	Costs	General
11.2.5 14.3	Operational Data Corrective Action	X X	X	X	X X	X
15.1 15.2	SECTION 15: Audit of Quality Program Performance Performance of Audits Audit Reports & Corrective Action	X X				X

2. Narrative Summary

The transition from MIL-Q-9858 to NPC 200-2 would require a major change in a contractor's quality operation. There are many significant differences in the scope of the specifications and the specific quality requirements and activities. These major differences are illustrated in the areas of Documentation, Quality, Traceability and Costs where it is indicated that MIL-Q-9858 either has less coverage or no coverage.